

Claims

1. An amplifier circuit at least comprising:  
at least one transconductor device connected to  
at least one phase shifter section with an adjustable phase shift and an  
impedance at least partially dependent of the frequency of an input signal,  
5 wherein in use said adjustable phase shift is adjusted to have substantially the  
opposite value of a phase shift of said transconductor device,  
wherein said phase shifter section at least comprises at least one capacitor  
device and at least one adjustable resistor device, said adjustable resistor  
device at least comprises:  
10 an amplifier device with  
at least one input contact for receiving a resistance control signal;  
at least one first output contact connected to at least one of said  
capacitor devices;  
and at least one second output contact connected to said transconductor  
15 device; and  
wherein said amplifier circuit further comprises a control device for providing  
said resistance control signal to said input contact.
2. An amplifier circuit as claimed in claim 1, wherein said amplifier device  
20 in the adjustable resistor device is substantially equivalent to said  
transconductor device.
3. An amplifier circuit as claimed in any one of the preceding claims,  
wherein said transconductor device is a transistor device.  
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4. An amplifier circuit as claimed in any one of claims 1-3, wherein said  
amplifier device in the adjustable resistor device is a transistor device

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5. An amplifier circuit as claimed in claims 3 or 4, wherein at least one of said transistor devices is a Metal Oxide Semiconductor Field Effect Transistor.
- 5 6. An amplifier circuit as claimed in any one of claims 1-5, wherein said control device at least comprises a voltage controlled oscillator.
7. An amplifier circuit as claimed in claim 6, wherein the control device system further comprises:
- 10 an amplifier device.
8. An amplifier circuit as claimed in claim 7 wherein the voltage controlled oscillator circuit at least comprises at least two oscillator transconductor devices substantially similar to said transconductor device.
- 15 9. A gyrator circuit at least comprising:  
at least one amplifier circuit as claimed in any one of the preceding claims and  
at least one amplifier device having  
an input contact connected to an output contact of the transconductor  
20 device in said amplifier circuit, and  
said amplifier device having a gain substantially the inverse of the gain of the  
amplifier device in said amplifier circuit.
10. A filter device at least comprising:  
25 at least one in-phase input  
at least one gyrator device as claimed in claim 9, connected to said in-phase  
input, and  
at least one in-phase output connected to said gyrator device
- 30 11. A filter device as claimed in claim 10, further comprising:

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at least one phase shifted input,  
at least one gyrator device as claimed in claim 9. connected to said phase  
shifted input, and  
at least one phase shifted output connected to said gyrator device

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12. A filter device as claimed in claim 11, further comprising:  
at least one first gyrator device connected to said in-phase input and said  
phase shifted input and  
at least one second gyrator device connected to said in-phase output and said  
10 phase shifted output.

13. A method for amplifying an input signal at least comprising:  
generating an signal current based on a voltage of an input signal;  
adjusting a phase shift of a resistor device to substantially the opposite of a  
15 phase shift of said signal current generated in said generating step, said  
resistor device having:  
an adjustable phase shift and  
an impedance at least partially dependent to the frequency of an input  
signal  
20 presenting the signal current to a capacitor device; and  
presenting the current to said resistor device.